

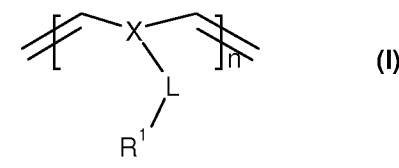
This listing of claims will replace all prior versions, and listings, of claims in the application:

What is claimed is:

1. (Withdrawn, Currently amended) A method of coating the internal surface of a device with a polymer, wherein the device is a microfabricated device or a reaction vessel with an internal diameter of less than about 2mm, the ~~process~~ method comprising the steps of:

- (i) introducing into the device a solution of one or more monomers in a suitable solvent;
- (ii) introducing a flow of an inert gas through the device; and
- (iii) initiating polymerisation of the monomer solution.

wherein polymerisation of the one or more monomers leads to a ROMP polymer of Formula (I):



wherein:

X is either a C₄₋₆ cycloalkyl or C₄₋₆ heterocyclyl moiety;

L is a C₁ to C₂₀ linker group comprising one or more alkyl, alkenyl, alkynyl, C₄₋₁₀ cycloalkyl, C₄₋₁₀ heterocyclyl, C₄₋₁₀ aryl, C₄₋₁₀ heteroaryl, ether, PEG, sulphide, amide, sulphamide or a combination thereof; any of which may be substituted with one or more groups R²

R¹ is hydrogen, C₁₋₂₀ alkyl, C₂₋₂₀ alkenyl, C₂₋₂₀ alkynyl, C₄₋₁₂ cycloalkyl, C₄₋₁₂ heterocyclyl, aryl, heteroaryl, C(O)R³, C₁₋₂₀ alkyl-C(O)R³, C₂₋₂₀ alkenyl-C(O)R³, C₂₋₂₀ alkynyl-C(O)R³, nitro, isocyanate, C₁₋₁₀ alkyl-C(O)-C(R⁴)₂-C(O)-C₁₋₁₀ alkyl, aminoxy, nitrile, phosphorus chloride,

succinimide, sulphonyl chloride, halogen, tosylate, mesylate, triflate, nonaflate, silane, OR⁴, SR⁴, N(R⁴)₂, N⁺(R⁴)₃, quaternary phosphorous, C₁₋₂₀ alkyl-R⁵, C₂₋₂₀ alkenyl-R⁵ or C₂₋₂₀ alkynyl-R⁵ or a group comprising an enzyme or a catalyst.

R² is C(O)R³, C₁₋₂₀ alkyl-C(O)R³, C₂₋₂₀ alkenyl-C(O)R³, C₂₋₂₀ alkynyl-C(O)R³, nitro, isocyanate, C₁₋₁₀ alkyl-C(O)-C(R⁴)₂-C(O)-C₁₋₁₀ alkyl, aminooxy, nitrile, phosphorus chloride, succinimide, sulphonyl chloride, halogen, tosylate, mesylate, triflate, nonaflate, silane, OR⁴, SR⁴, N(R⁴)₂, N⁺(R⁴)₃, quaternary phosphorous, C₁₋₂₀ alkyl-R⁵, C₂₋₂₀ alkenyl-R⁵ or C₂₋₂₀ alkynyl-R⁵.

R³ is H, OH, C₁₋₂₀ alkyl, OC₁₋₂₀ alkyl, N(R⁴)₂, N⁺(R⁴)₃;

each R⁴ is independently H or C₁₋₁₀ alkyl;

R⁵ is OR⁴, SR⁴, N(R⁴)₂, N⁺(R⁴)₃, C₄₋₁₀ cycloalkyl, C₄₋₁₀ heterocyclyl, aryl or heteroaryl.

2. (cancelled)

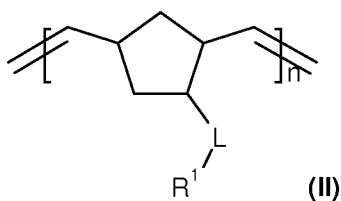
3. (Withdrawn) A method as claimed in claim 1, wherein the inert gas is nitrogen or argon.

4. (Withdrawn) A method as claimed in claim 1, wherein the device is a microfabricated device or a loop from 1 to 100 cm in length.

5. (Withdrawn) A method as claimed in claim 1, wherein the device is adapted to carry out a solid-phase radiochemical process.

6-10. (Cancelled)

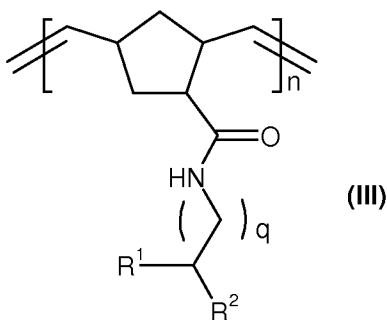
11. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein polymerisation of the one or more monomers leads to a ROMP polymer of Formula (II):



wherein:

$-L$ -, R^1 and n are as defined above for Formula (I).

12. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein polymerisation of the one or more monomers leads to a ROMP polymer of Formula (III):



wherein:

R^1 and n are as defined above for Formula (I);

R^2 is an optional group as defined above for $-L-$ of Formula (I); and,

$q = 1-4$.

13. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 12, wherein, in the ROMP polymer of Formula (III), R^1 is trialkylammonium, R^2 is absent, $q = 3$ and n = number of polymer units.

14. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1, wherein each monomer is present in the starting solution in a concentration of from about 0.1 to 5M.

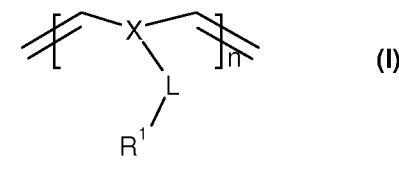
15. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein, in the monomer solution, the solvent is a polar aprotic solvent.

16. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein polymerisation is initiated by heating.

17. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1 wherein polymerisation occurs spontaneously.

18. (Withdrawn, Currently amended) A ~~process~~ method as claimed in claim 1, wherein the device is a microfabricated device and, the process of the invention comprises the initial step of creating a defined network of channels within the device.

19. (Currently amended) A device comprising a microfabricated device or a reaction vessel with an internal diameter of less than ~~about~~ 2mm, wherein the internal surface is coated with a polymer ~~substrate for a solid phase physical or chemical process~~ of Formula (I):



wherein:

X is either a C₄₋₆ cycloalkyl or C₄₋₆ heterocyclyl moiety;

L is a C₁ to C₂₀ linker group comprising one or more alkyl, alkenyl, alkynyl, C₄₋₁₀ cycloalkyl, C₄₋₁₀ heterocyclyl, C₄₋₁₀ aryl, C₄₋₁₀ heteroaryl, ether, PEG, sulphide, amide, sulphamide or a combination thereof; any of which may be substituted with one or more groups R²

R¹ is hydrogen, C₁₋₂₀ alkyl, C₂₋₂₀ alkenyl, C₂₋₂₀ alkynyl, C₄₋₁₂ cycloalkyl, C₄₋₁₂ heterocyclyl, aryl, heteroaryl, C(O)R³, C₁₋₂₀ alkyl-C(O)R³, C₂₋₂₀ alkenyl-C(O)R³, C₂₋₂₀ alkynyl-C(O)R³, nitro, isocyanate, C₁₋₁₀ alkyl-C(O)-C(R⁴)₂-C(O)-C₁₋₁₀ alkyl, aminooxy, nitrile, phosphorus chloride, succinimide, sulphonyl chloride, halogen, tosylate, mesylate, triflate, nonaflate, silane, OR⁴, SR⁴, N(R⁴)₂, N⁺(R⁴)₃, quaternary phosphorous, C₁₋₂₀ alkyl-R⁵, C₂₋₂₀ alkenyl-R⁵ or C₂₋₂₀ alkynyl-R⁵ or a group comprising an enzyme or a catalyst.

R² is C(O)R³, C₁₋₂₀ alkyl-C(O)R³, C₂₋₂₀ alkenyl-C(O)R³, C₂₋₂₀ alkynyl-C(O)R³, nitro, isocyanate, C₁₋₁₀ alkyl-C(O)-C(R⁴)₂-C(O)-C₁₋₁₀ alkyl, aminooxy, nitrile, phosphorus chloride, succinimide, sulphonyl chloride, halogen, tosylate, mesylate, triflate, nonaflate, silane, OR⁴, SR⁴, N(R⁴)₂, N⁺(R⁴)₃, quaternary phosphorous, C₁₋₂₀ alkyl-R⁵, C₂₋₂₀ alkenyl-R⁵ or C₂₋₂₀ alkynyl-R⁵.

R³ is H, OH, C₁₋₂₀ alkyl, OC₁₋₂₀ alkyl, N(R⁴)₂, N⁺(R⁴)₃;

each R⁴ is independently H or C₁₋₁₀ alkyl;

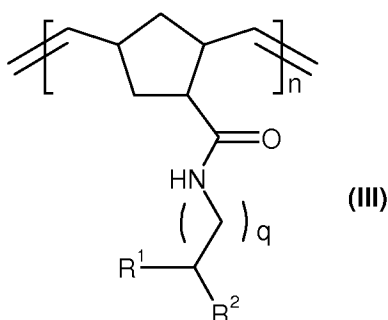
R⁵ is OR⁴, SR⁴, N(R⁴)₂, N⁺(R⁴)₃, C₄₋₁₀ cycloalkyl, C₄₋₁₀ heterocyclyl, aryl or heteroaryl.

20. (Original) A device as claimed in claim 19 adapted for carrying out a solid phase radiochemical process.

21 - 22. (Cancelled)

23. (Previously presented) An automated synthesis system comprising two or more devices as claimed in claim 19 which are fluidly interconnected.

24. (Withdrawn, Currently amended) A method for recovering of ^{18}F -fluoride ion from ^{18}O -enriched water containing ^{18}F -fluoride ion, the process comprising passing the ^{18}O -enriched water containing ^{18}F -fluoride ion through a device as claimed in claim 19 or a system comprising two or more devices as claimed in claim 19 which are fluidly interconnected, in which the polymer coating comprises a ROMP polymer of general formula (III):

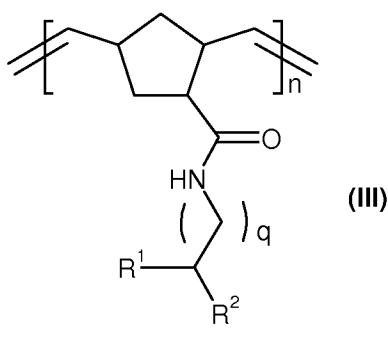


in which R^1 is tri(C_{1-6} alkyl)ammonium, with a non-nucleophilic counter-ion, R^2 is absent and q is 3.

25. (Withdrawn) A method as claimed in claim 24 which is a step in the synthesis of an ^{18}F -labelled radiotracer.

26. (Withdrawn, Currently amended) A method for the synthesis of an ^{18}F -labelled radiotracer, the method comprising:

(i) recovering of ^{18}F -fluoride ion from ^{18}O -enriched water containing ^{18}F -fluoride ion passing the ^{18}O -enriched water containing ^{18}F -fluoride ion through a device as claimed in claim 19 or a device comprising two or more devices as claimed in claim 19 which are fluidly interconnected, in which the polymer coating comprises a ROMP polymer of general formula (III):



in which R^1 is tri(C_{1-6} alkyl)ammonium, with a non-nucleophilic counter-ion, R^2 is absent and q is 3; and

(ii) introducing into the device an unlabelled precursor compound of the ^{18}F -labelled radiotracer such that ^{18}F becomes incorporated into the precursor compound *via* nucleophilic substitution to form the ^{18}F -labelled radiotracer.

27. (Withdrawn) A method as claimed in claim 26, wherein the ^{18}F -labelled radiotracer is:

2- ^{18}F fluorodeoxyglucose (2- ^{18}F -FDG);

L-6- ^{18}F fluoro-DOPA;

3'-deoxy-3'-fluorothymidine (FLT);

2-(1,1-dicyanopropen-2-yl)-6-(2- ^{18}F fluoroethyl)-methylanino)-naphthalene (^{18}F FDDNP);

5 ^{18}F fluorouracil; 5 ^{18}F fluorocytosine; or

^{18}F -1-amino-3-fluorocyclobutane-1-carboxylic acid (^{18}F -FACBC).